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Forest Service, United States Department of Agriculture

ALLEGHENY FOREST EXPERIMENT STATION*

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EXPERIMENT STATION

Technical Note No. 15.

DEER AND RABBIT INJURY TO NORTHERN
HARDWOOD REPRODUCTION

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During the summer of 1936, records were made of deer and rabbit injury to tree reproduction on fenced and unfenced quarter-acre plots on the Kane Experimental Forest, located in the birch-beech-maple-hemlock type in northwestern Pennsylvania. The plots are situated in four different areas: a frost pocket without overwood, a culled old-growth stand, and two 40-year-old second-growth stands, one on a north-facing slope, the other on a plateau. In each area there are two unfenced plots, one fenced against deer, and one fenced against both deer and rabbits. The long-time purpose of the plots is to show the gross effect of deer and rabbit browsing upon the density, composition, and growth of natural reproduction.

The first year's examination has provided information on the amount of deer and rabbit injury by species (Table 1) and by habitats (Table 2). The data are based on an examination of all tree reproduction over one foot in height and less than 0.6 inches in diameter.

Table 1

<u>Percentage</u> <u>injured by deer</u>		<u>Percentage</u> <u>injured by rabbits</u>	
Rod maple	29	Rod maple	47
Hemlock	29	Beech	23
Black cherry	26	Sugar maple	21
Sugar maple	20	Black cherry	9
Beech	13	Hemlock	3

A statistical analysis of the data showed that differences in species susceptibility were significant in the case of rabbit injury, but not in the case of deer injury. This means that another sample of data could be expected to place the species in about the same order with respect to rabbit injury, although not relative to deer injury. A further statistical test of the amount of rabbit injury by species showed that the percentage for red maple was significantly higher than the percentage for any other species, and that in addition, the percentage for hemlock was significantly lower than the percentage for sugar maple or for beech. These analyses, combined

*Maintained at Philadelphia, Pennsylvania, in cooperation with the University of Pennsylvania.

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with the range in percentages, indicate that rabbits feed more selectively than deer.

Table 2

Agency		Amount of injury by habitat - all species			
		Culled old growth	Second growth (north slope)	Second growth (plateau)	Open (frost pocket)
Deer	Percentage injured	0.1	47	26	20
	Basis-no. of trees	2193	245	425	665
Rabbits	Percentage injured	1	6	15	23
	Basis-no. of trees	3593	308	644	856

Neither deer nor rabbit injury to reproduction was appreciable under the culled old-growth stand. Rabbit injury was greatest in the open, and deer injury was greatest under second growth on the north slope.

The nature of each injury was recorded in the field. Of the 364 instances of deer injury, all were from browsing. Of 365 trees injured by rabbits, only two percent showed any evidence of having been gnawed. Gnawing - a relatively serious type of damage - is apparently uncommon in forest stands in this locality. The deer browsing was well distributed over the crowns of the reproduction, but 62 percent of the rabbit browsing was terminal.

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